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BRIEF DIAGNOSES OF TWENTY-SIX APPARENTLY NEW FORMS OF *MARMOSA* (MARSUPIALIA) FROM SOUTH AMERICA

By G. H. H. Tate

In course of preparation of my revisional paper on *Marmosa* which is pending publication, a number of apparently distinct forms—mainly subspecies—have been noted and are described below. I am greatly indebted to the authorities of the various museums indicated, who have the material in their charge, for their permission to study their collections.

To Mr. M. A. C. Hinton, British Museum, Dr. W. H. Osgood, Field Museum of Natural History, Chicago, Dr. H. Pohle, Zoologisches Museum, Berlin, and Mr. P. G. Redington, U. S. Biological Survey I am especially grateful for permission to describe new forms. Particularly am I indebted to Mr. H. E. Anthony, curator of mammals in The American Museum of Natural History, for permission to revise this genus and to make use of material which he has been securing for the department and would otherwise have described himself.

Marmosa cinerea paraguayana, new subspecies

Type.—No. 25.5.1.15, British Museum; male, ad.; Villa Rica, Paraguay; collector, Shade. The type is a skin and skull in good condition; in British Museum.

General Characters.—A large member of the *cinerea* group with longer pelage and broader skull than in true *cinerea*.

Description.—Color above a very clear mouse gray[1] with no admixture of brownish; ventrally with the tips of the hairs deep yellow-buff through which little of the gray of the lateral gray-based hairs shows. Inguinal and gular regions self-colored and connected by a narrow self-colored stripe. Tail nearly half as long again as head and body, particolored.

Skull with broadly expanded zygomata which are evenly arched. Supraorbital ridges strongly developed and forming angular processes. These processes placed as in *cinerea*. Palate short and broad. Bullæ large and smooth.

Measurements.—Taken from dried skin: length of head and body, 160 mm.; length of tail vertebræ, 220; length of hind foot (c.u.), 27; skull measurements not taken.

[1]Color nomenclature after Ridgway.

Other material which I refer to this subspecies is that from Lagoa Santa and Santa Catharina. The range of *cinerea paraguayana* includes approximately the southern part of Brazil and eastern Paraguay.

Cinerea paraguayana is to be distinguished from *cinerea cinerea* (Temminck) principally through the pelage characters cited above, and the proportionately broader and shorter form of skull and palate.

Marmosa demararæ arenitícola, new subspecies

TYPE.—No. 75691, Amer. Mus. Nat. Hist.; male, ad.; Arabupu, foot of Mt. Roraima, Venezuela, 4200 feet; December 29, 1927; collectors, Tate and Carter. The type is a skin and skull in good condition; in American Museum.

GENERAL CHARACTERS.—A rather small form of *demararæ* with longer, denser, grayer pelage.

DESCRIPTION.—Color above browner than hair-brown and darker and grayer than sepia—the shade being accounted for by the cinnamon-yellow tips of the hairs resting upon their slaty basal parts. Underparts between cartridge buff and cream buff, darkening on neck, throat, chin and cheeks to chamois. Eye-rings broad and very black. Tail long, the distal half white, the basal furry part of tail 33 mm. in length. The individual hairs of base of tail very long and fluffy.

Skull scarcely distinguishable from that of true *demararæ*. Palate usually without posterior vacuities. Bullæ rather large and smoothly rounded.

MEASUREMENTS.—Taken in the flesh: length of head and body, 163 mm.; length of tail vertebræ, 239; length of hind foot (c.u.), 29; basal length of skull, 38.1; zygomatic breadth, 23.0; length of M^{1-3}, 7.4.

This appears to be a local race of *demararæ* which is probably confined to the vicinity of the Roraima upland savannas. The subspecies is based upon a series of eight specimens, all from Arabupu.

Marmosa demararæ esmeraldæ, new subspecies

TYPE.—No. 76964, Amer. Mus. Nat. Hist.; male, old ad.; Esmeralda, near foot of Mt. Duida, upper Rio Orinoco, Venezuela, 325 feet; October 7, 1928; collector, G. H. H. Tate. The type is a skin and skull in good condition; in American Museum.

GENERAL CHARACTERS.—The largest known form of *Marmosa;* the adult males occasionally develop a sagittal crest on skull.

DESCRIPTION.—Pelage dense, lax, generally slightly wavy, above mouse gray with a brownish suffusion. Face and sides lighter, tinged with russet. Underparts pale rusty buff, near cinnamon buff. Basal 40 mm. of tail with moderately long hairs.

Skull very strongly constructed, with well-expanded zygomata. Supraorbital processes large, strongly pointed, abruptly narrowed behind at the very pronounced postorbital constriction. Temporal ridges in type not actually forming a crest. Pelage long and broad with long posterior foramina.

MEASUREMENTS.—Taken in the flesh: length of head and body, 202 mm.; length of tail vertebræ, 264; length of hind foot (c.u.), 32; basal length of skull, 44.3; zygomatic breadth, 26.6; length of M^{1-3}, 7.7.

The specimen in which the sagittal crest is developed is A. M. N. H. 76974. Females are much smaller than males and never develop such pronounced cranial characters.

The subspecies is based upon eighteen specimens, all of which come from the neighborhood of Mt. Duida and the Casiquiare Canal. One specimen was taken as high as 6200 feet.

Marmosa demararæ meridæ, new subspecies

TYPE.—No. 137510, U. S. Biol. Surv.; male, old ad.; "Cafetos de Mérida," Mérida, 1630 meters; June 14, 1904; collector, Briceño Gabaldon. The type is a skin and skull in fair condition; in collection of U. S. Biological Survey.

GENERAL CHARACTERS.—Essentially as in true *demararæ*, but with decidedly coarser and harsher pelage than in any of the other three subspecies.

DESCRIPTION.—Color above near bistre or sepia, the caudal fur becoming strongly brownish. Face light drabbish gray. Underparts a dirty grayish shade of cream buff deepening on neck, chin and cheeks to chamois. Unicolorous hair (with gray bases) on chin and cheeks only. Eye-rings grayish black, narrowed beneath eyes.

Skull of type barely distinguishable from *demararæ* and with rather broad zygomata, well-developed and pointed supraorbital processes and considerable postorbital constriction. Palate broad, short, with accessory vacuities. Under surface of bullæ with slight tendency to become pointed.

MEASUREMENTS.—Taken from dried skin: length of head and body, 180 mm.; length of tail vertebræ, 240; length of hind foot (c.u.), 31; basal length of skull, 41.5; zygomatic breadth, 25.3; length of M^{1-3}, 7.5.

The subspecies is based upon thirty-two specimens almost all of which were collected by Gabaldon in the Mérida region and may be found throughout the collections of the world's museums. The distribution appears to extend westward along the Orinoco side of the Andes into Colombia. Although there are at present no connecting forms between this subspecies and those of the Guiana region, it is probable that such will eventually be found. I would emphasize that the above three subspecies, together with *demararæ demararæ*, represent in my opinion regional forms of one widely distributed species. However, my studies of this species have convinced me that these races are true indications of local geographic conditions and for that reason I think may be accorded subspecific rank.

Marmosa mapiriensis, new species

TYPE.—No. 72555, Amer. Mus. Nat. Hist.; male, old ad.; Ticunhuaya, road from Sorata to Guanay, Tipuani River, Provincia de la Paz, Bolivia, 4800 feet; April 23, 1926; collector, G. H. H. Tate. The type is a skin and skull in good condition; in American Museum.

GENERAL CHARACTERS.—A member of the *cinerea* group with long appressed fur and extremely short tail.

DESCRIPTION.—Fur slightly wavy. General color above near hair brown with face very little paler. Underparts near cinnamon buff, washed with vinaceous cinnamon at throat and chin. Self-colored hairs found only in a narrow strip 4 mm. in width from throat to lower chest. Tail very short, indistinctly particolored, the basal brown color extending in blotches well towards the tip.

Skull broad and blunt, with well-developed supraorbital processes. Bullæ small and rather strongly pointed beneath. Nasals with the abrupt expansion at the maxillo-frontal suture seen in *constantiæ*. Temporal ridges not approximated. Palate short, possessing accessory openings.

MEASUREMENTS.—Taken in the flesh: length of head and body, 162 mm.; length of tail vertebræ, 202; length of hind foot (c.u.), 26; basal length of skull, 37.8; zygomatic breadth, 24.3; length of M^{1-3}, 7.2.

This species is based upon six specimens, all of which come from the eastern slopes of the Cordillera Real, Bolivia, at altitudes between 2000 and 8000 feet. The general structure of the skull, together with the short tail, suggests relationship with *constantiæ*, which extends from the Matto Grosso to the Santa Cruz region of Bolivia. At approximately the headwaters of the Inambari River *mapiriensis* is replaced by the Peruvian *rapposa* which is larger and has a longer tail with much white distally and with coarser, more fuzzy hair at its base.

Marmosa germana parda, new subspecies

TYPE.—No. 24140, Field Mus. Nat. Hist.; male, ad.; Huachipa, mouth of Rio Cayumba, upper Rio Huallaga, Peru, about 3000 feet; September 28, 1922; collector, J. T. Zimmer. The type is a skin and skull in good condition; in Field Museum.

GENERAL CHARACTERS.—A mountain form nearest to *germana rutteri* but with longer pelage and with underparts between yellow and ochreous.

DESCRIPTION.—Brownish gray above becoming brownish on face and sides, ventral color nearest to cinnamon buff. Chin, throat, cheeks, neck and an extremely narrow median line, unicolorous. Tail fuscous.

Skull not distinguishable from that of *germana rutteri*.

MEASUREMENTS.—Taken in the flesh: length of head and body, 171 mm.; length of tail vertebræ, 235; length of hind foot (c.u.), 28; basal length of skull, 40.4; zygomatic breadth, 25.0; length of M^{1-3}, 7.5.

Sixteen specimens, all collected in the Huallaga drainage between 2500 and 6000 feet, are assigned to this subspecies. Notable among them are the three specimens in the British Museum from Chinchivita, Nos. 27.11.1.245 to 247, which have the color of the underparts deep brownish yellow.

Marmosa murina roraimæ, new subspecies

TYPE.—No. 75703, Amer. Mus. Nat. Hist.; male, ad.; Arabupu, foot of Mt. Roraima, Venezuela, 4000 feet; December 25, 1927; collectors, Tate and Carter. The type is a skin and skull in good condition; in American Museum.

GENERAL CHARACTERS.—The locally specialized form of *murina*, distinguishable on account of its long dense pelage which lacks the reddish tint of most subspecies and is separable from its nearest ally, *murina muscula* of the lowlands of British Guiana, through the total lack of natal brown.

DESCRIPTION.—Dorsal color nearest to bistre. Underparts not varying from cream-color and little or not at all narrowed by gray-based hairs. Pelage soft, long and smooth-lying.

Skull not distinguishable from that of *muscula;* with well-developed supraorbital processes, convergent toothrows and well-rounded bullæ of moderate size.

MEASUREMENTS.—Taken in the flesh: length of head and body, 122 mm.; length of tail vertebræ, 184; length of hind foot (c.u.), 22; basal length of skull, 31.2; zygomatic breadth, 19.9; length M^{1-3}, 5.9.

Murina roraimæ, represented by a series of fourteen specimens from Arabupu, is to be regarded as a local mountain-inhabiting form of *murina*. Doubtless with further collecting it will be found that this race intergrades with *muscula*, *madeirensis*, *duidæ*, and *klagesi*, the four subspecies which surround it, but the characters set forth appear sufficiently characteristic to be worthy of subspecific separation.

Marmosa murina duidæ, new subspecies

TYPE.—No. 76984, Amer. Mus. Nat. Hist.; male, old ad.; "Middle Camp," foot of Mt. Duida, eight miles north of Esmeralda, upper Rio Orinoco, southern Venezuela, 350 feet; February 3, 1929; collectors, Olalla y hermano. The type is a skin and skull, the latter in rather a fragmentary condition; in the American Museum.

GENERAL CHARACTERS.—A *murina*-like form distinguished in adults by its markedly narrow palate.

DESCRIPTION.—Color above natal brown, the face paler. Underparts dirty buff, the hairs from chin to behind forelimbs self-colored. Ears large, dark fuscous. Feet heavy and broad, tail long, unicolorous.

Skull heavily constructed for the species, elongate, narrow-muzzled, with zygomata well expanded. Palate very long and toothrows more parallel than in most members of the *murina* section of *Marmosa*. Canines very thick, long, oval in cross-section. Anterior edge of coronoid perfectly straight.

MEASUREMENTS.—Taken in the flesh: length of head and body, 135 mm.; length of tail vertebræ, 192; length of hind foot (c.u.), 24; basal length of skull 35.1; zygomatic breadth, 21.1; length M^{1-3}, 6.1.

This subspecies is based upon five specimens taken in the upper Orinoco basin near Mt. Duida. It will probably be found that it intergrades imperceptibly with *murina klagesi* of the lower Orinoco on the one hand and on the other hand with *murina madeirensis* of the lower Rio Negro and middle Amazon. From *murina roraimæ* it is separated by its thinner rather shorter pelage, greater size in adulthood, greater suffusion of reddish, and by the cranial characters mentioned above.

Marmosa rubra, new species

TYPE.—No. 71973, Amer. Mus. Nat. Hist.; female, old ad.; mouth of Rio Curaray, Province of Oriente, Ecuador; December 7, 1925; collectors, Olalla y hermano. The type is a skin and skull in fair condition; in American Museum.

GENERAL CHARACTERS.—A very large cinnamon-brown member of the *murina* group.

DESCRIPTION.—Color above between chestnut and burnt sienna, beneath near ochraceous buff. Self-colored hairs from throat to chest arranged in an irregular stripe about 1 cm. in width. A much narrower line of irregularly placed areas of creamy hairs accompany the stripe. Face somewhat paler than dorsum, with very narrow but defined median reddish-fuscous line from rhinarium to brow. Eye-ring much reduced behind and below eye. Ears small, fuscous. Feet large, with stout claws. Tail dark fuscous above, lighter beneath.

Skull short and broad, with widely expanded zygomata. Postorbital region broad and much less constricted than in any other form of the *murina* group. Supraorbital processes not pointed but reduced to fine raised beading. Toothrows rather strongly convergent and canines short.

MEASUREMENTS.—Taken from dried skin: length of head and body, 140 mm.; length of tail vertebræ, 190; length of hind foot (c.u.), 22; basal length of skull, 32.2; zygomatic breadth, 21.3; length M^{1-3}, 6.3.

Rubra is based upon twelve specimens collected at the type locality and at San José Abajo, Mt. Sumaco, eastern Ecuador. The species, whose nearest relative is *murina*, appears to be strongly differentiated.

Marmosa tyleriana,[1] new species

TYPE.—No. 76983, Amer. Mus. Nat. Hist.; female, young ad.; "Central Camp," Mt. Duida Plateau, upper Rio Orinoco, Venezuela, 4800 feet; February 6, 1929; collectors, Olalla y hermano. The type is a skin and skull in good condition; in American Museum.

GENERAL CHARACTERS.—A small member of the *murina* group, about equal in size to *quichua*, but with the long shaggy pelage and vinaceous underparts of *dryas*.

DESCRIPTION.—Color above near russet with something of the mottled appearance of *marica*. Hair long and lax above and below. Face scarcely paler than dorsum. Underparts near fawn color, hairs everywhere gray-based except inguinal area which is rusty vinaceous. Ears large and deeply pigmented. Throat gland absent. Tail of moderate length, its basal half fuscous brown, its distal half creamy.

Skull elongate, narrow. Muzzle relatively broad. Zygomatic arches narrow. Supraorbital ridges barely noticeable. A distinct postorbital constriction. Palate long and narrow. Bullæ large, smoothly rounded, without processes.

MEASUREMENTS.—Taken in the flesh: length of head and body, 115 mm.; length of tail vertebræ, 171; length of hind foot (c.u.), 20; basal length of skull, 29.5; zygomatic breadth, 17.0; length of M^{1-3}, 5.7.

This species, of which a second specimen, a juvenile male, was taken

[1]Dweller in *Tyleria* forests on plateau of Mt. Duida; *Tyleria* is proposed in honor of Mr. S. F. Tyler, Jr., who generously financed the expedition to Mt. Duida.

on the same plateau at 6900 feet, appears to be peculiarly a product of the highly specialized environmental conditions of the summit of Mt. Duida.

Marmosa yungasensis, new species

TYPE.—No. 72558, Amer. Mus. Nat. Hist.; female, old ad.; Pitiguaya, Rio Unduavi, Yungas, Bolivia, 5600 feet; May 10, 1926; collector, G. H. H. Tate. The type is a skin and skull in good condition; in American Museum.

GENERAL CHARACTERS.—A subtropical species allied to the narrow-skulled *noctivaga* with long fine pelage and clear white underparts. Skull with unusually short canines for the *noctivaga* group.

DESCRIPTION.—Median region of back darkest, near natal brown, paling gradually to russet on sides. Face slightly paler than back. Ocular mark well-developed. Underparts pale creamy white, the hairs self-colored even at the sides, the white area narrowed slightly in the costal region and at the neck. Feet unusually small and slender. Tail quite densely fine-haired throughout. Throat gland moderately developed, dorsal pelage length 9–10 mm.

Skull rather lightly ossified, the molars smaller than in *noctivaga* and *dorothea*. A sharp supraorbital ridge without definite beading.[1]

MEASUREMENTS.—Taken in the flesh: length of head and body, 136 mm.; length of tail vertebræ, 169; length of hind foot (c.u.), 17; basal length of skull, 33.0; zygomatic breadth, 18.4; length M^{1-3}, 5.7.

This species is represented by eight specimens, all of which were taken at the type locality.

Marmosa ocellata new species

TYPE.—No. 26.1.5.25, British Museum; male, old ad.; Buenavista, Department of Santa Cruz, Bolivia, 500 meters; August 6, 1924; collector, José Steinbach. The type is a skin and skull in good condition; in British Museum.

GENERAL CHARACTERS.—A member of the *noctivaga* group, rather larger than *leucastra* and very similarly colored but differing in possessing strongly developed eye-rings, narrowed interorbital region and much smaller molar teeth.

DESCRIPTION.—Color above between light drab and hair brown, becoming slightly cinnamon on sides. Face paler than dorsum. Eyes surrounded by black which extends backward almost to the base of the ear. Ventral pelage pale white, a few gray-based hairs at junction with dorsal color. Feet buffy white, tail slightly bicolor, decidedly particolored, but distal one-third to one-fifth whitish and the entire tail clothed with fine white hairs. Ears large, semitranslucent, profusely haired terminally. Throat gland well developed.

Skull heavily built but scarcely of characteristic appearance of the *noctivaga* group on account of the supraorbital region which is narrow and, being merely angled, lacks prominences or beading. Molars very small, palate relatively narrow.

MEASUREMENTS.—Taken from dried skin: length of head and body, 140 mm.; length of tail vertebræ, 186; length of hind foot (c.u.), 21; basal length of skull, 33.9; zygomatic breadth, 20.0; length of M^{1-3}, 5.7.

[1]There is an indication in young males that beading will form with age.

This form, which is rare in collections, is based upon five examples all from Buenavista, distributed between the British Museum and the Carnegie Museum, Pittsburgh. I am inclined to think that *ocellata* is an annectant form not only geographically but morphologically between *noctivaga* and *incana*.

Marmosa incana bahiensis, new subspecies

TYPE.—No. 3.9.5.137, British Museum; male, ad.; Lamarão, Bahia, Brazil, 1903; collector, A. Robert. The type is a skin and skull, the latter slightly broken; in British Museum.

GENERAL CHARACTERS.—Very near true *incana* with similar coloration and similar differences in length of pelage in the sexes; distinguished by its proportionately longer molar toothrows and the absence of any trace of modification of the gular hairs of males.

DESCRIPTION.—Color above mouse gray to benzo brown, beneath clear creamy white. Fur very soft and lax, tail proportionately short.

Skull smaller than in true *incana* but essentially similar, with the exception of the length of the toothrow. Coronoid appressed, not strongly inclined to dentary.

MEASUREMENTS.—Taken in the flesh: length of head and body, 135 mm.; length of tail vertebræ, 166; length of hind foot (c.u.), 21; basal length of skull, —; zygomatic breadth, 18.7; length of M^{1-3}, 6.3.

The subspecies is based upon ten specimens, all of which were captured by Mr. Robert in Lamarão.

Marmosa incana paulensis, new subspecies

TYPE.—No. 26576, Field Mus. Nat. Hist.; male, young ad.; Therezopolis, Rio de Janeiro, São Paulo, Brazil; collector, C. C. Sanborn. The type is a skin and skull, the latter slightly damaged.

GENERAL CHARACTERS.—Somewhat smaller than *incana incana* and *incana bahiensis*, with much smaller ears and with the hairs of the throat in males little or not at all modified.

DESCRIPTION.—Color above gray with a slight brownish wash considerably darker than the northern forms. Underparts ivory white. No distinction in length of pelage between sexes.

Skull with teeth larger than those of true *incana* and about equal in size to those of *bahiensis*. Canines short. Bullæ rather well inflated compared with those of *incana*.

MEASUREMENTS.—Taken in the flesh: length of head and body, 132 mm.; length of tail vertebræ, 150; length of hind foot (c.u.), 21; basal length of skull, —; zygomatic breadth, —; length of M^{1-3}, 6.2.

The subspecies is based upon eleven specimens which come from the Provinces of São Paulo and Parana. All three forms of *incana*, although anatomically distinguishable, are very closely allied, and further collecting may reveal considerable intregradation between them.

Marmosa caucæ albiventris, new subspecies

TYPE.—No. 194378, U. S. Nat. Mus.; male, ad.; Torontoy, near Cuzco, Peru, 8000 feet; April 30, 1915; collector, E. Heller. The type is a skin and skull in good condition; in U. S. National Museum.

GENERAL CHARACTERS.—Very closely allied to *caucæ madescens* but disinguished by the pure white underparts.

DESCRIPTION.—Color above identical with that of *madescens*. Ventral color white to the bases of the hairs from chin to vent, with the exception of an asymmetrical spot of gray-based hairs 10 mm. in width just behind the left arm, and a slight reduction of the average width in the mid-ventral region from 22 mm. to 16 mm. Tail as in *madescens*.

The skull, which shows characters of full adulthood, is essentially like that of *caucæ madescens;* minute beading of the supraorbital region is developed and the bullæ seem very slightly smaller.

MEASUREMENTS.—Taken in the flesh: length of head and body, 105 mm.; length of tail vertebræ, 144; length of hind foot (c.u.), 18; basal length of skull, 27.5; zygomatic breadth, 16.1; length of M^{1-3}, 5.8.

Probably the increase of white in the ventral color pattern is related to local conditions of dryness at Torontoy.

Marmosa caucæ ucayaliensis, new subspecies

TYPE.—No. 78952, Amer. Mus. Nat. Hist.; male, young ad.; Lagarto, Rio Ucayali, eastern Peru; March 20, 1928; collectors, Olalla y hermano. The type is a skin and skull in fair condition; in American Museum.

GENERAL CHARACTERS.—The lowland representative of *caucæ*, closest to *purui*, characterized by unusually short fur ventrally and by exceedingly small compressed bullæ.

DESCRIPTION.—Color of the type fuscous dorsally. Underparts with self-colored area 10 mm. in width (broader in other specimens), creamy white. Feet light buff; ears and tail fuscous.

Skull resembling that of *caucæ madescens* except in the bullæ, which are much more compressed. The skull differs from that of *purui* in its shorter distance from palate to bulla. Canines moderately long.

MEASUREMENTS.—Taken from dried skin: length of head and body, 110 mm.; length of tail vertebræ, 145; length of hind foot (c.u.), 19; basal length of skull, 28.0; zygomatic breadth, 16.2; length of M^{1-3}, 5.6.

The material upon which this subspecies is based amounts to twenty-five specimens. It is derived from various camps in the lower Ucayali drainage and on the Pachitea. Three specimens from the mouth of the Rio Curaray, Ecuador, although slightly larger, are also assigned to *ucayaliensis*. The range of the species appears to extend northward from the Ucayali to the lower Napo River in Ecuador and to be bounded on the east by the range of *caucæ purui* and on the west by that of various mountain-inhabiting forms of *caucæ*.

Marmosa microtarsus guahybæ, new subspecies

TYPE.—No. 4306, Zoologisches Museum, Berlin; male, young ad.; Island of Guahyba near Porto Alegre, Rio Grande do Sul, Brazil; collector, Hensel. The type is a skin and skull in fair condition; in Berlin Museum.

GENERAL CHARACTERS.—A very small representative of *microtarsus*, slightly paler in color.

DESCRIPTION.—Color above rather pale cinnamon, the face still paler. Hairs of underparts gray-based from the chest posteriorly. Face, chest and throat self-colored. Color of underparts a rather deep buff with chin whitish. Eye-ring narrowed or absent beneath eye. Vibrissæ rather short; feet very small, light brownish buff. Tail slightly bicolored.

Skull rather narrower than *m. microtarsus* (probably an age character). Supraorbital parts smoothly rounded; bullæ with only a suggestion of an anterior process. Teeth very small.

MEASUREMENTS.—Taken from dried skin: length of head and body, 70 mm.; length of tail vertebræ, 100; length of hind foot (c.u.), 15; basal length of skull, 21; zygomatic breadth, 13.3; length M^{1-3}, 4.6.

Guahybæ, represented by nine specimens from Rio Grande do Sul, is considered by me to be a southern representative of typical *microtarsus* which occurs in the Provinces of São Paulo, Parana, and Santa Catharina. As in *microtarsus*, both pectoral and inguinal mammæ are developed.

Marmosa agilis chacoensis, new subspecies

TYPE.—No. 4.1.5.48, British Museum; male, young ad.; Sapucay, Paraguay; September 11, 1903; collector, W. Foster. The type is a skin and skull in good condition; in British Museum.

GENERAL CHARACTERS.—Similar to *agilis agilis* but generally smaller and with the ventral area self-colored, buffy white, and its center-most portion clear white.

DESCRIPTION.—Color above essentially the same dusty brown, near walnut brown, as in *agilis agilis*. Face scarcely paler than dorsum. Eye-ring more reduced than in *agilis*. Skull with zygomatic expansion rather slight; no trace of supraorbital ridges; molar toothrows shorter than in *agilis*.

MEASUREMENTS.—Taken in the flesh: length of head and body, 101 mm.; length of tail vertebræ, 126; length of hind foot (c.u.), 18; basal length of skull, 23.4; zygomatic breadth, 14.4; length of M^{1-3}, 4.5.

Chacoensis is based upon six specimens: four from Paraguay; one from Los Palmas in the Argentina Chaco; and one collected by Dr. Krieg (München), from Villa Montes, upper Rio Pilcomayo. The last-named animal has the underparts dull cinnamon-buff, and other slight color differences, and should perhaps be distinguished subspecifically.

Marmosa agilis buenavistæ, new subspecies

TYPE.—No. 26.12.4.91, British Museum; female, ad.; Buenavista, Department of Santa Cruz, Bolivia; March 7, 1916; collector, José Steinbach. The type is a skin and skull in fair condition; in British Museum.

GENERAL CHARACTERS.—A brownish form with rather coarser pelage than typical *agilis*, and further distinguished from *chacoensis* by its large ears and buff ventral color.

DESCRIPTION.—Color above near verona brown with face paler. Underparts yellow buff, self-colored except for the gray-based hiars which narrow the stomach area to a strip of self-colored hairs 10 mm. in width. Eye-ring well marked. Vibrissæ long; ear rather large; tail slightly bicolored, light fuscous brown.

Skull with rather broad zygomata; snout pionted, but rapidly broadening. Supraorbital ridges sharp. Palate as in *agilis* Bullæ well developed, rounded, with process as in *agilis*.

MEASUREMENTS.—Taken from dried skin: length of head and body, 110 mm.; length of tail vertebræ, 140; length of hind foot (c.u.), 16; basal length of skull, 25.0; zygomatic breadth, 15.7; length of M^{1-3}, 4.6.

I have based this subspecies upon ten specimens, all of which have been collected in the neighborhood of Buenavista.

Marmosa agilis peruana, new subspecies

TYPE.—No. 27.11.1.268, British Museum; male, young ad.; Tingo Maria, Rio Huallaga, Peru, 2000 feet; January 20, 1927; collector, R. W. Hendee. The type is a skin and skull in good condition; in British Museum.

GENERAL CHARACTERS.—A subspecies of *agilis* with slightly grayer pelage which is "waved" much as in *marica*.

DESCRIPTION.—Above near Prout's brown with face paler. Underparts buff; self-colored as far backward as chest. Vibrissæ very short; ears very small. Glandular area of throat well developed. Feet buffy white; tail light, fuscous, slightly bicolored.

Skull with broadly spreading zygomata, narrow nasals with broadened bases; narrow muzzle; practically undeveloped supraorbital processes. Toothrows moderately convergent; teeth very small; bullæ small, rather compressed, with well-developed anterior processes.

MEASUREMENTS.—Taken in the flesh: length of head and body, 91 mm.; length of tail vertebræ, 136; length of hind foot (c.u.), 16.5; basal length of skull, 23.2; zygomatic breadth, 15.0; length of M^{1-3}, 4.7.

The subspecies is based upon two specimens from Tingo Maria.

Marmosa unduaviensis, new species

TYPE.—No. 72563, Amer. Mus. Nat. Hist.; male, ad.; Pitiguaya, Rio Unduavi, Yungas, Bolivia, 5800 feet; May 12, 1926; collector, G. H. H. Tate. The type is a skin and skull, the latter in poor condition; in American Museum.

GENERAL CHARACTERS.—A fus ous-brownish form allied to *agilis*.

DESCRIPTION.—Dorsal color near mummy brown, darkest along middorsal line, paler on sides. Face scarcely paler. Eye-rings not well developed. Ventral color between cartridge buff and cream buff. Chin almost chamois. A narrow, intermittent, median-white line distinct only on lower chest. Pelage on throat showing specialized whorls of short stiff hairs. Ears small, fuscous brown. Vibrissæ very short, black. Feet very small, tail rather short.

Skull with characteristic form of *agilis*. Zygomata moderately broad; palate broad. Bullæ well rounded with a minute process.

MEASUREMENTS.—Taken in the flesh: length of head and body, 102 mm.; length of tail vertebræ, 120; length of hind foot (c.u.), 17; basal length of skull 26.5; zygomatic breadth, —; length of M^{1-3}, 5.0.

This form is based upon two specimens, the second of which is a young adult female.

Marmosa aceramarcæ, new species

TYPE.—No. 72568, Amer. Mus. Nat. Hist.; Rio Aceramarca, tributary of Rio Unduavi, Yungas, Bolivia, 10,800 feet; May 25, 1926; collector, G. H. H. Tate. The type is a skin and skull, the latter broken; in American Museum.

GENERAL CHARACTERS.—Strongly resembling the little *Marmosa dryas* from Mérida, Venezuela. Easily distinguishable from *unduaviensis* by its different color and very small teeth.

DESCRIPTION.—Color of back near Mars brown or russet, but containing fuscous shades that in certain lights make it look darker. Face not paler, the lower part touched with gray. Hairs of underparts except chin, which is buffy brown, with a light tawny over-wash, beneath which are gray bases. Fur very long and lax and filled with numerous over-hairs. Feet extremely small, whitish buff, the exterior part of the shank fuscous.

Skull with zygomata but little expanded; muzzle very narrow; palate narrow. Bullæ large, close together, with well-developed processes. Teeth extremely small, both ascending ramus and processus angularis extremely slender.

MEASUREMENTS.—Taken in the flesh: length of head and body, 83 mm.; length of tail vertebræ, 112; length of hind foot (c.u.), 16; basal length of skull, 23.6, zygomatic breadth, —; length of M^{1-3}, 4.7.

The species is known from the type only.

Marmosa lepida grandis, new subspecies

TYPE.—No. 26.12.4.94, British Museum; female, ad.; Buenavista, Santa Cruz, Bolivia; January 25, 1926; collector, José Steinbach. The type is a skin and skull in good condition; in British Museum.

GENERAL CHARACTERS.—Color as in true *lepida*, but size very much larger, with larger skull and teeth.

DESCRIPTION.—Dorsal color near Sanford's brown; ventral color pale cinnamon, the throat and chin alone having self-colored hairs. Pelage fine and soft and very long. Eye-rings reduced beneath. Ears very small, semitranslucent. Feet and claws very small. Inguinal region rusty vinaceous.

Skull a large copy of *lepida lepida* with similarly prolonged premaxillæ. Fine, pointed supraorbital processes. Bullæ rounded, without processes.

MEASUREMENTS.—Taken from dried skin: length of head and body, 120 mm.; length of tail vertebræ, 145; length of hind foot (c.u.), 19; basal length of skull, 26.2; zygomatic breadth, 17.2; length of M^{1-3}, 5.1.

This specimen, when captured, had five young. Except for one of the juveniles which is preserved, it is the only example known.

Marmosa juninensis, new species

TYPE.—No. 63864, Amer. Mus. Nat. Hist.; female, young ad.; Utcuyacu, between Tarma and Chanchamayo, Province of Junin, Peru, 4800 feet; November 25, 1929; collector, H. Watkins. The type is a skin and skull, the latter in poor condition; in American Museum.

GENERAL CHARACTERS.—Superficial appearance intermediate between *lepida* and *caucæ ucayaliensis*, but the cranial characters indicate its affinity with the former.

DESCRIPTION.—Color above near argus brown, beneath with the self-colored fascia posterior to the throat almost completely obscured by gray-based hairs. The gray basal portions of these hairs very neary approach their tip, giving underparts the grayish appearance suggestive of the silvery gray of *fuscata*. Inguinal hairs tawny.

Skull very small. Zygomata not wide-spreading; muzzle narrow. Bullæ moderate, the anterior processus well developed but short. Teeth very small, canines extremely short, compressed.

MEASUREMENTS.—Taken from dried skin: length of head and body, 110 mm.; length of tail vertebræ, 133; length of hind foot (c.u.), 17.5; basal length of skull, —; zygomatic breadth, 14.4; length of M^{1-3}, 5.2.

Juninensis is represented by the type only.

Marmosa parvidens, new species

TYPE.—No. 18545, Field Mus. Nat. Hist.; female, young ad.; Hyde Park, thirty miles up Demarara River, British Guiana, twenty feet; September 8, 1906; collector, S. B. Warren. The type is a skin and skull in good condition; in Field Museum.

GENERAL CHARACTERS.—Distinguishable from the form of *lepida* occurring in Dutch Guiana by darker pelage, large ears, narrow zygomata, molariform canines and proportionately large $P\frac{1}{1}$.

DESCRIPTION.—Dorsal color near Hay's brown or natal brown, slightly paler at sides; face markedly paler. Eye-rings narrow. Underparts creamy buff, self-colored except slight narrowing at belly to 12 mm. Ears large; feet very small; tail brown.

Skull with narrow zygomata, the arches of which are extremely low at the position of the postorbital processes when seen from the sides. Supraorbital ridges unbeaded, represented by an angle only. No postorbital constriction. Palate rather narrow with accessory fenestræ. Bullæ moderately inflated with strong anterior processes. Teeth small, with unusual modification of $P\frac{1}{1}$ and $\frac{c}{c}$, the former unusually large, with anteroposterior length of P^1, 1.2 mm. The upper canine short, compressed, and provided with anterior and posterior cingular cusps.

MEASUREMENTS.—Taken from dried skin: length of head and body, 105 mm.; length of tail vertebræ, 130; length of hind foot (c.u.), 15; basal length of skull, 25.0; zygomatic breadth, 14.9; length of M^{1-3}, 4.7.

This animal is shown to belong in the *microtarsus* group by its very small feet and claws, short vibrissæ and minute teeth. Previously it had been confused with *murina muscula*.

Marmosa elegans coquimbensis, new subspecies

TYPE.—No. 23302, Field Mus. Nat. Hist.; female, young ad.; Paiguano, Province of Coquimbo, Chile, 3300 feet; June 20, 1923; collector, C. C. Sanborn. The type is a skin and skull in good condition; in Field Museum.

GENERAL CHARACTERS.—A pale form of *elegans*.

DESCRIPTION.—Color of middle of dorsum near hair brown, lateral color near drab, but slightly paler and darker in patches, a pale brownish-drab median line from the frontal point of the dark dorsal area almost to the tip of muzzle. Remainder of face whitish drab. Both fore and hind limbs and underparts white, the underparts posterior to the neck very faintly tinged with yellowish. Gray-based hairs on hind limbs, as far distally as elbow of forelimbs and along each side of body from forelimb posteriorly. These gray-based hairs border a median self-colored area 17 mm. in width. Eye-ring even narrower than in typical *elegans*, its black color only about .5 mm. in width. The feet unusually small; but this may be an age character.

Skull closely similar to that of *elegans elegans* and measurements are within the range of young females of this subspecies. The bullæ, however, appear slightly larger and more approximated.

MEASUREMENTS.—Taken in the flesh: length of head and body, 92 mm.; length of tail vertebræ, 106; length of hind foot (c.u.), 14; basal length of skull, 24.3; zygomatic breadth, 14.6; length of M^{1-3}, 5.0.

This form, occurring some 200 miles north of Valparaiso, is apparently the arid-country representative of true *elegans*. Material examined: the type only.